

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A carbon fiber composite material comprising an elastomer and a carbon nanofiber substantially uniformly dispersed in the elastomer, wherein:

the elastomer has an unsaturated bond or a group, having affinity to the carbon nanofiber; ~~and~~

the elastomer in the composite material is in its uncrosslinked ~~form~~, form; and

the composite material has a first spin-spin relaxation time (T2n) of its network component of 100 to 3,000 μ sec and a second spin-spin relaxation time (T2nn) of being absent or 1,000 to 10,000 μ sec, and a fraction (fnn) of components having the second spin-spin relaxation time of less than 0.2, as measured under conditions of an observing nucleus of ^1H at 150 °C by the Hahn-echo method using pulsed NMR technique.
2. (Original) The carbon fiber composite material according to claim 1, wherein the elastomer has a weight average molecular weight of 5,000 to 5,000,000.
3. (Currently Amended) The carbon fiber composite material according to claim 1, wherein the elastomer has, in at least one of its main chain, side chains and terminal chains, at least one member selected from the group consisting of a double bond, a triple bond, ~~α -hydrogen~~, a carbonyl group, a carboxyl group, a hydroxyl group, an amino group, a nitrile group, a ketone group, an amide group, an epoxy group, an ester group, a vinyl group, a halogen group, a urethane group, a biuret group, an allophanate group, and a urea group.
4. (Currently Amended) The carbon fiber composite material according to claim 1, wherein the elastomer in the composite material is in its uncrosslinked form and has a spin-spin relaxation time (T2n) of its network component of 100 to 3,000 μ sec as measured under

conditions of an observing nucleus of ^1H at 30 °C by the Hahn-echo method using pulsed NMR technique.

5. (Currently Amended) The carbon fiber composite material according to claim 1, wherein the elastomer in the composite material is in its crosslinked form and has a spin-spin relaxation time (T_{2n}) of its network component of 100 to 2,000 μsec as measured under conditions of an observing nucleus of ^1H at 30 °C by the Hahn-echo method using pulsed NMR technique.

6. (Original) The carbon fiber composite material according to claim 1, wherein the elastomer in the composite material is one of natural rubber (NR) and nitrile rubber (NBR).

7. (Currently Amended) A carbon fiber composite material comprising an elastomer and a carbon nanofiber substantially uniformly dispersed in the elastomer, wherein the elastomer in the composite material is in its uncrosslinked form, and has a first spin-spin relaxation time (T_{2n}) of 100 to 3,000 μsec and a second spin-spin relaxation time (T_{2nn}) of being absent or 1,000 to 10,000 μsec , and a fraction (f_{nn}) of components having the second spin-spin relaxation time of less than 0.2, as measured under conditions of an observing nucleus of ^1H at 150 °C by the Hahn-echo method using pulsed NMR technique.

8. (Currently Amended) A carbon fiber composite material comprising an elastomer and a carbon nanofiber substantially uniformly dispersed in the elastomer, wherein the elastomer in the composite material is in its crosslinked form, and has a first spin-spin relaxation time (T_{2n}) of 100 to 2,000 μsec and a second spin-spin relaxation time (T_{2nn}) of being absent or 1,000 to 5,000 μsec , and a fraction (f_{nn}) of components having the second spin-spin relaxation time of less than 0.2, as measured under conditions of an observing nucleus of ^1H at 150 °C by the Hahn-echo method using pulsed NMR technique.

9. (Original) The carbon fiber composite material according to claim 1, wherein the elastomer in the composite material is in its uncrosslinked form and the composite material has a flow temperature higher than the inherent flowing temperature of the elastomer by 20 °C or more.

10. (Original) The carbon fiber composite material according to claim 1, wherein the carbon nanofiber has an average diameter of 0.5 to 500 nm.

11. (Withdrawn) A process for producing a carbon fiber composite material comprising substantially uniformly dispersing a carbon nanofiber into an elastomer by shear force, wherein the elastomer has an unsaturated bond or a group, having affinity to the carbon nanofiber.

12. (Withdrawn) The process according to claim 11, wherein the elastomer has a weight average molecular weight of 5,000 to 5,000,000.

13. (Withdrawn-Currently Amended) The process for producing a carbon fiber composite material according to claim 11, wherein the elastomer has, in at least one of its main chain, side chains and terminal chains, at least one member selected from the group consisting of a double bond, a triple bond, ~~α -hydrogen~~, a carbonyl group, a carboxyl group, a hydroxyl group, an amino group, a nitrile group, a ketone group, an amide group, an epoxy group, an ester group, a vinyl group, a halogen group, a urethane group, a biuret group, an allophanate group, and a urea group.

14. (Withdrawn-Currently Amended) The process for producing a carbon fiber composite material according to claim 11, wherein the elastomer in the composite material is in its uncrosslinked form and has a spin-spin relaxation time (T_{2n}) of its network component of 100 to 3,000 μ sec as measured under conditions of an observing nucleus of ^1H at 30 °C by the Hahn-echo method using pulsed NMR technique.

15. (Withdrawn) The carbon fiber composite material according to claim 11, wherein the elastomer in the composite material is one of natural rubber (NR) and nitrile rubber (NBR).
16. (Withdrawn) The process for producing a carbon fiber composite material according to claim 11, wherein the carbon nanofiber has an average diameter of 0.5 to 500 nm.
17. (Withdrawn) The process for producing a carbon fiber composite material according to claim 11, wherein the dispersing step is carried out in accordance with an open-roll method using two rolls with a roll distance of 0.5 mm or less.
18. (Withdrawn) The process for producing a carbon fiber composite material according to claim 17, wherein the two rolls have their surface velocity ratio of 1.05 to 3.00.
19. (Withdrawn) The process for producing a carbon fiber composite material according to claim 11, wherein the dispersing step is carried out by a closed kneading method with a rotor distance of 1 mm or less.
20. (Withdrawn) The process for producing a carbon fiber composite material according to claim 11, wherein the dispersing step is carried out by a multi-screw extruding kneading method with a screw distance of 0.3 mm or less.
21. (Withdrawn) The process for producing a carbon fiber composite material according to claim 11, wherein the dispersing step is carried out at a temperature of 0 to 50 °C.
22. (Withdrawn) The process for producing a carbon fiber composite material according to any one of claim 11, further comprising a step of crosslinking the elastomer in the composite material after the dispersing step.
23. (Original) The carbon fiber composite material according to claim 7, wherein the elastomer in the composite material is in its uncrosslinked form and the composite

material has a flow temperature higher than the inherent flowing temperature of the elastomer by 20 °C or more.

24. (Original) The carbon fiber composite material according to claim 7, wherein the carbon nanofiber has an average diameter of 0.5 to 500 nm.

25. (Original) The carbon fiber composite material according to claim 8, wherein the elastomer in the composite material is in its uncrosslinked form and the composite material has a flow temperature higher than the inherent flowing temperature of the elastomer by 20 °C or more.

26. (Original) The carbon fiber composite material according to claim 8, wherein the carbon nanofiber has an average diameter of 0.5 to 500 nm.

27. (Currently Amended) A carbon fiber composite material comprising an elastomer and a carbon nanofiber substantially uniformly dispersed in the elastomer, wherein:
the elastomer has an unsaturated bond or a group, having affinity to the carbon nanofiber; and

the elastomer in the composite material is in its crosslinked ~~form~~, form; and
the composite material has a first spin-spin relaxation time (T2n) of its network component of 100 to 2,000 μsec and a second spin-spin relaxation time (T2nn) of being absent or 1,000 to 10,000 μsec, and a fraction (fnn) of components having the second spin-spin relaxation time of less than 0.2, as measured under conditions of an observing nucleus of ¹H at 150 °C by the Hahn-echo method using pulsed NMR technique.

28. (Previously Presented) A carbon fiber composite material comprising an elastomer and a carbon nanofiber homogeneously dispersed in the elastomer, wherein the elastomer has an unsaturated bond or group bonding with an active part of the carbon nanofiber.

29. (Previously Presented) The carbon fiber composite material according to claim 28, wherein the unsaturated bond or group bonds with a terminal radical of the carbon nanofiber.